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# AUSTRALIAN PLANT DISEASE RECORDER

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For confidential circulation to plant pathologists in Australia - PLEASE DO NOT ABSTRACT

COMMONWEALTH MYCOLOGICAL INSTITUTE
8 AUG 1958

# PLANT DISEASE NOTES

## CEREALS AND GRASSES

### MAIZE WALLABY-EAR DISEASE:

Reports received from B.M. Braithwaite, Entomologist at Murwillumbah, N.S.W., and P.W. Grogan, Lecturer in Plant Breeding at Gatton Agricultural College, Queensland, indicate that maize wallaby-ear disease is more prevalent in maize crops this season. The higher incidence this year is probably due to dry conditions forcing greater numbers of the leafhopper vector to migrate on to the young maize seedlings.

Investigations in progress in the C.S.I.R.O Division of Entomology, Virus Section, over the past two and a half years have shown that the disease of maize known as wallaby-ear may also affect a wide range of pasture grasses in northern areas.

No extensive study has been made of the disease in grasses under field conditions, but an attempt was made during November, 1956, to determine the limit of the southern extension into N.S.W. of the vector and the disease. The disease and the leafhopper vector, Cicadulina bimaculata Evans, were indentified on maize at Tygalgah, near Murwillumbah, at Fernmount, and near Wauchope.

The record of the disease during early November is of some interest, because previous records in Queensland indicated that it was a disease of late-planted crops.

Current investigations are aimed at determining the true nature of the causal agent of the disease.

- N.E. GRYLLS

C.S.I.R.O.,
Division of Entomology,
Canberra. A.C.T.

LEAF SPOT OF BUFFALO GRASS:

A species of Piricularia, not previously recorded in Western Australia, has been found on diseased buffalo grass (Stenotaphrum secundatum Kuntze) from several lawns in the Perth metropolitan area.

In each instance, the householder first noticed the disease in patches where heavy applications of nitrogenous fertiliser and more than ample watering had encouraged very lush growth.

The fungus appears to be morphologically identical with P. oryzae Cav., the causal organism of rice blast, although its pathogenicity with regard to rice has still to be ascertained.

- S.C. CHAMBERS

Department of Agriculture,
PERTH.

## VEGETABLES

### HALO BLIGHT OF FRENCH BEANS - CONTROL BY SPRAYING:

During the 1956/7 season, spray trials for the control of halo blight in seed bean crops were initiated in the Orbost District. The trial was carried out in two sections:-

1. Using certified seed grown in an infected environment.

2. Using seed from a crop which showed considerable infection during the 1955/6 season.

The materials tested were Bordeaux mixture 6:8:100 (6 lb. copper sulphate, 8 lb. fresh limil, 100 gallons water), Agrimycin-100 (100 p.p.m.), streptomycin sulphate (100 p.p.m.), streptomycin sulphate (100 p.p.m.) plus 1% glycerol (by volume), streptomycin sulphate (100 p.p.m.) plus indole acetic acid (100 p.p.m.), and streptomycin sulphate (100 p.p.m.) plus 1% glycerol (by volume) plus indole acetic acid (100 p.p.m.).

The variety used was Brown Beauty.

Results indicate that the percentage of plants infected with halo blight can be significantly reduced by the use of Bordeaux mixture. All sprays were applied on five occasions at approximately fortnightly intervals, commencing at the first true leaf stage of growth. The first three sprayings were carried out using a knapsack spray and the last two with a portable piston pump unit operated at a pressure of about 60 lb. per sq.in. The volumes of spray required increased from 50 gallons per acre in the early stages to 150 gallons per acre for the final spraying.

Comparison of results of sprayed and unsprayed plots.

| Treatment | % diseased plants | |
|---|---|---|
| | Certified seed grown in an infected environment | Seed from crop showing considerable infection during 1955/6 season |
| Agrimycin - 100 (100 p.p.m.) | 24.0 (1.37) | 20.2 (1.29) |
| Streptomycin sulphate (100 p.p.m.) | 24.6 (1.40) | 25.1 (1.34) |
| Streptomycin sulphate(100p.p.m) plus 1% glycerol (by volume) | 23.6 (1.37) | 22.5 (1.30) |
| Streptomycin sulphate (100p.p.m) plus indole acetic acid(100p.p.m) | 22.4 (1.35) | 20.2 (1.20) |
| Streptomycin sulphate(100p.p.m) plus 1% glycerol (by volume) plus indole acetic acid(100p.p.m) | 24.7 (1.39) | 21.5 (1.28) |
| Bordeaux mixture (6:8:100) | 0.7 (0.20) | 0.7 (0.17) |
| Unsprayed | 37.3 (1.54) | 33.9 (1.48) |
| Differences for significance 5% level | (0.16) | (0.34) |
| 1% level | (0.21) | (0.45) |

The figures in brackets refer to transformed data.
Log (% + 1) transformation was used.

No figures were obtained regarding severity of infection with reference to the numbers of lesions per plant or pod, but general observations throughout the season indicated that the infection was less severe on the Bordeaux sprayed plants than on the unsprayed ones.

During the 1957/8 season, further trials have been carried out under conditions very favourable for halo blight development. These results are at present being analysed, but general observations indicate the same trend of control, but with a higher level of infection. This work was carried out using heavily infected seed.

- L.C. JONES.

Department of Agriculture,
Melbourne.

## FUSARIUM WILT OF CUCUMBERS:

A vascular wilt of cucumbers from the Brisbane Metropolitan Area this season was found to be caused by a form of Fusarium oxysporum. The variety affected was Crystal Apple and the symptoms were those typically produced by a Fusarium wilt. Fusarium oxysporum was consistently isolated from the discoloured vascular tissue of affected plants.

Cross inoculation tests using the cucumber isolate and also an isolate of F. oxysporum of proven pathogenicity to watermelons were carried out on Crystal Apple cucumbers and Kleckley Sweet watermelons, in the glasshouse. The cucumber isolate produced wilting and death of inoculated cucumbers and was readily re-isolated from the affected plants. This isolate also caused stunting of the inoculated watermelons without any wilting or chlorosis. The watermelon isolate caused rapid wilting and death of inoculated watermelons, but had no effect on inoculated cucumbers.

This is the first reliable record of Fusarium wilt of cucumber in Queensland, although there is an unsubstantiated report from Lamb Island in 1947. The symptoms of affected plants and the results obtained from pathogenicity tests are similar to those reported by Owen from Florida (Phytopathology 46, 3, 153, 1956). Owen proposed the name Fusarium oxysporum (Schlecht) Snyd. & Hans. F. cucumerinum for the causal organism.

- B.L. OXENHAM.

Department of Agriculture and Stock,
BRISBANE.

FRUIT.

BLACK SPOT CONTROL BY POST HARVEST ERADICANT SPRAYING:

The results of early field experiments at Yetholme, Orange, and Batlow were reported in A.P.D.R. 7:1:8, 1955, and preliminary results from experiments at Maroota and Tumorrama were reported in A.P.D.R. 8:3:43, 1956. Further results from the latter experiments are reported here.

At Maroota (30 miles north-west of Sydney) 0.1% phenyl mercuric acetate was applied in late March, 1955 and0.1% phenyl mercuric chloride in April, 1956. No fungicide has been applied since then. In the 1955-6 season only two lightly infected fruit were found, and slight leaf infection occurred on 5 trees. In the 1956-7 season no fruit scab occurred and the only lesions detected were on four slightly infected leaves. These were picked off. In the 1957-8 season, no scab lesion has yet been detected in the orchard.

At Tumorrama (40 miles north-east of Batlow) in the southern highlands) 0.1% P.M.C. was applied in May, 1955, May 1956 and May 1957 in two small home orchard plots of trees. No other fungicide has been applied to these trees since the experiment began. In the 1955-6 season, light leaf infection occurred in each orchard and about 1% of the fruit carried light infection. In the 1956-7 season, no fruit infection was detected in the Moorby orchard (30 trees) but toward the end of the season a few leaf lesions were detected on two trees. In the Archer orchard (16 trees), there was a trace of fruit and leaf infection.

In the 1957-8 season no fruit lesions were detected in the Moorby orchard and no leaf lesions have yet been found. In the Archer orchard six lightly infected apples were found in a total of approximately 60 cases of fruit and a few lightly infected leaves were detected on one Granny Smith tree. The nearest apple trees to these plots are at the Tumorrama Post Office, about 3 miles away, and there scab infection has been severe each season.

There is a possibility that black spot has been eradicated from the Maroota plot following two successive autumn treatments and from the Moorby orchard at Tumorrama following three sprayings. It is felt that the trace of inoculum visible in the Archer orchard may be due to imperfect spraying, as the trees there are rather large for the spraying equipment used.

No post harvest treatment will be applied this autumn in any of these plots. At Maroota no fungicide will be applied next season, but at Tumorrama some wettable sulphur sprays will be required to control powdery mildew.

- K.E. HUTTON

Department of Agriculture,
SYDNEY.

ORNAMENTALS.

CURVULARIA LEAF-SPOT ON IMPORTED GLADIOLI:

A gladiolus plant, grown in post-entry quarantine at Wahroonga, exhibited symptoms of leaf-spotting caused by the fungus, Curvularia lunata (Wakker) Boedijn.

Curvularia attacks gladiolus flowers, stems, leaves, and corms. On the leaves the lesions are tan to brown in colour and are surrounded by a red-brown margin. Black conidia and conidiophores are produced in abundance over the lesion are.

Curvularia leaf-spot is an economically important diseasd in the Phillipines and in Florida, U.S.A., but it has been seen here only in quarantine plots. In an attempt to eradicate the pathogen, rigorous control measures were carried out. These included destruction of the entire group of imported plants by burning, and sterilisation with formalin of the area in which they were growing.

The conidia which are formed profusely on the lesion surface are air-borne. Eradication will therefore depend as much on the isolation of the quarantine area as on the control measures practised. It will be most interesting to observe the spread and incidence of this disease should it subsequently occur.

- JOHN A. PEARMAN

Department of Agriculture,
SYDNEY.

## ANNOUNCEMENTS.

### NINTH INTERNATIONAL BOTANICAL CONGRESS:

Advice has been received from the Canadian Government Trade Commissioner, 82 Elizabeth St., Sydney, that this congress will be held in Montreal from October 19th to 29th, 1959, at McGill University and the University of Montreal.

The congress will be held under the auspices of the Canadian Department of Agriculture, and will include papers and symposia related to all branches of pure and applied botany. Basic information circulars and application forms can be obtained from the Canadian Government Trade Commissioner.

### CONTRIBUTIONS:

Those plant pathologists and mycologists who are not in touch with the official correspondents of the A.P.D.R. are reminded that contributions are always welcome and can be sent to the editor at any time.

Articles should be forwarded in duplicate and limited to 40 lines of double-spaced typing.